2010 GGE-Reducing Action Items Summary Report and Recommendations for Future Steps

A Report by the City of Bloomington Environmental Commission
Bloomington, Indiana, May 2010

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Table of Contents

Background

On April 21, 2006, City of Bloomington Mayor Mark Kruzan signed the U.S. Mayor's Climate Protection Agreement. This agreement commits signatories to a reduction in city greenhouse gas (GHG) emissions by 7% below 1990 levels by the year 2012. In order to achieve a reduction in greenhouse gas emissions (GGEs), it is necessary to both measure these emissions and make systematic plans to reduce emissions. In recent years, the City of Bloomington has begun to make an effort to reduce local GGEs at both the City government and community-wide levels. In 2008, Bloomington became a member of ICLEI-Local Governments for Sustainability and their Cities for Climate Protection (CCP) campaign.[1] In order to track GGEs, Bloomington has subscribed to ICLEI's Clean Air and Climate Protection (CACP)[2] GHG inventory software. As a member of the CCP campaign, Bloomington commits to five sequential goals:

(1) To conduct an emissions inventory, and forecast future emissions;
(2) To adopt a reduction target for forecasted year(s);
(3) To develop an emissions reduction action plan;
(4) Implement the points of this action plan; and,
(5) Monitor the results.[3]

In 2009, the City of Bloomington completed a preliminary greenhouse gas inventory using 2006 data, forecasted emissions for 2012, and adopted an emissions reduction target for 2012 (see "Greenhouse Gas Inventory for the City of Bloomington, Indiana: Footprint, Projections, Recommendations"[4]), thereby meeting goals 1 and 2 above. But even before this inventory, in 2006, a set of action items to reduce the city's GGEs had been developed by the Bloomington Environmental Commission (see "A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana"[5]). However, before now there had not been a systematic effort to track and report the implementation of these action items in the context of the CCP campaign's five goals and the CACP greenhouse gas inventory software used by the City.

This report summarizes the City of Bloomington's progress on the 120 action items first put forth in the aforementioned 2006 Environmental Commission report, and makes recommendations for future steps in reducing greenhouse gas emissions. In an effort to track the implementation of these and other action items in the future, a Microsoft Excel spreadsheet file[6] has been created, categorizing the action items according to several classification schemes. This spreadsheet is the first attempt to systematically track the status of City GGE-reducing action items for the CCP campaign, to align these action items with the way information is gathered for the GHG inventory, and to follow the ICLEI GHG

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[1] For more information on the CCP campaign, see: ICLEI-Local Governments for Sustainability. (1995-2008). "Cities for Climate Protection (CCP) Campaign." Retrieved 28 May 2010 from http://www.iclei.org/index.php?id=10829.

[2] ICLEI-Local Governments for Sustainability, USA. (1995-2010). "CACP Software 2009." Retrieved 28 May 2010 from http://www.icleiusa.org/action-center/tools/cacp-software.

[3] ICLEI-Local Governments for Sustainability. (1995-2008). "The Five Milestone Process." Retrieved 14 May 2010 from http://www.iclei.org/index.php?id=810.

[4] "City of Bloomington Environmental Commission, City of Bloomington Commission on Sustainability, & City of Bloomington Office of the Mayor. (2009, May). "Greenhouse Gas Inventory for the City of Bloomington, Indiana: Footprint, Projections, Recommendations," prepared by Mark Lemon, Patrick Foley, and Frances Gary, 22pp. Retrieved 6 May 2010 from https://bloomington.in.gov/media/media/application/pdf/5047.pdf.

[5] City of Bloomington Environmental Commission. (2006, July). "A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana," prepared by E. Roberts, 25pp. Retrieved 27 Apr 2010 from https://bloomington.in.gov/media/media/application/pdf/5198.pdf.

[6] Entitled "GGE-Reducing Action Items Tracking_complete.xlsx" (hereafter called, "the spreadsheet"); available in PDF format on the City of Bloomington Environmental Commission Greenhouse Gas Reduction Information webpage: http://bloomington.in.gov/documents/viewDocument.php?document_id=3800.

reporting protocol.[7] This report uses the action items as organized in the spreadsheet as a basis for summarizing the City of Bloomington's GGE-reducing actions and providing recommendations for the next steps based on action items not yet started. (Note that this report, as mentioned above, is meant to be a summary document, and does not explain how to use the spreadsheet; for an explanation of the use of the spreadsheet, please see the document "Greenhouse Gas Reducing Action items Tracking Spreadsheet How-To."[8])

What Action Items Are Started?

Of the 120 total action items, the implementation of 81 has been started, while 39 have not been started. A breakdown of all action items by implementation status is shown in Figure 1. Two action items have been completely finished (implementation status is "done") and require no further action. Twenty-two action items are at the "defending" stage, meaning that the action item is being done or has been done, but that ongoing doing and monitoring will be necessary to sustain the resulting GGE reductions. Thirty-two action items have been designated in the "doing" stage, indicating that current work is being done on this action item but more is still needed, or that the action item is in the process of being completed. Twenty-five action items are categorized as in the "thinking" stage, meaning that the action item is in the planning or deliberation stages and that the City may be thinking about change, but has not yet committed to any concrete action.

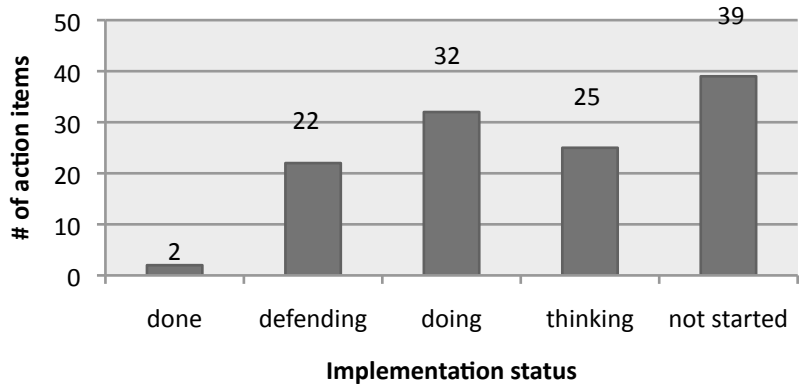

Figure 1. Breakdown of action items by implementation status. (See spreadsheet file, "GGE-Reducing Action Items Tracking_complete.xslx," for a complete list of action items in all categories.)

Figure 2 shows the breakdown of the 81 started action items (in the done, defending, doing, and thinking categories) by the type of action required by City government. There are 6 types of actions by city government an action item could require: advocacy, education campaigns, operations and infrastructure changes, ordinance changes, policy decisions, and, programs and services. The bulk of action items for which implementation has already been started fall into the categories of policy decisions or operations and infrastructure changes. Policy decisions are relatively easy action items to implement, because although they do require significant investment of political capital by City Council and City policy-makers, the changes in policies generally require no fiscal investment. Making a policy is a statement of a commitment toward the goal of reducing city emissions, and the City of Bloomington

[7] As outlined in ICLEI-Local Governments for Sustainability. (2009, Oct). "International Local Government GHG Emissions Analysis Protocol (IEAP)," Version 1.0. 56pp. Retrieved 5 Apr 2010 from http://www.iclei.org/fileadmin/user_upload/documents/Global/Progams/CCP/Standards/ICLEI_IEAP_2009.pdf.

[8] City of Bloomington Environmental Commission. (Apr, 2010). "Greenhouse Gas Reducing Action Items Tracking Spreadsheet How-to," prepared by J. Vogt (intern), 8pp.

has made a number of these sorts of verbal or written commitments (e.g. the Growth Policies Plan[9] that promotes alternative transportation among other strategies to increase city sustainability and reduce GGEs). However, it should also be noted that policy decisions are frequently not legally binding, and so are no guarantee of actual reductions in GGEs. Operations and infrastructure changes, on the other hand, do require fiscal investment and a physical change in the operations of City facilities or in the city's infrastructure, and thus are more likely to result in actual GGE reductions. The City of Bloomington has started 21 action items in this category, ranging from replacing incandescent light bulbs with CFLs in City facilities to improving bicycle and pedestrian infrastructure throughout the community.

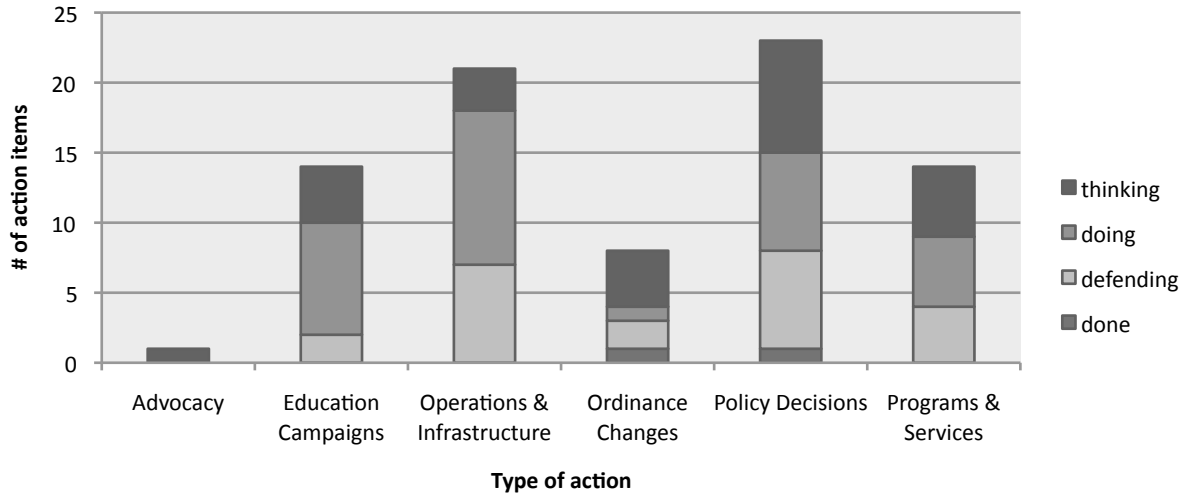

Figure 2. Breakdown of started action items by type of action required by the city government. Note that the bulk of action items that have already been started required policy decisions (23 action items) or changes in operations and infrastructure (21 action items).

The action items that the city has implemented impact the emissions of various sectors within the city government and community. (Classification of action items into sectors is useful because the ICLEI GHG reporting protocol[10] and CACP software also classify emissions into sectors.) There are 27 started action items affecting government level emissions and 43 started action items affecting community level emissions. In addition, there are 11 action items categorized as information items, the implementation of which in and of themselves does not directly reduce GGEs (e.g. maintaining a GGE inventory), but which still contribute to the larger goal of monitoring and mitigating GHGs. Table 1 lists those emissions sectors defined by ICLEI's GHG reporting protocol.[11] Figures 3 and 4 shows the breakdown of started action items according to these sectors for government-level emissions (Figure 3) and community-level emissions (Figure 4). In the government sector, the largest number of action items affects buildings and facilities emissions, which corresponds to the fact that buildings are one of the largest contributors to global emissions, and thus would naturally have the most possibility for reduction. In the community sector, the largest number of action items affects transportation emissions, which is appropriate for a community largely dependent on automobiles, and therefore with great emissions reduction potential in this sector.

[9] City of Bloomington. (2002). "2002 Growth Policies Plan," 116pp. Retrieved 27 May 2010 from https://bloomington.in.gov/media/media/application/pdf/49.pdf.

[10] ICLEI-Local Governments for Sustainability. (2009, Oct). "International Local Government GHG Emissions Analysis Protocol (IEAP)," Version 1.0. 56pp. Retrieved 5 Apr 2010 from http://www.iclei.org/fileadmin/user_upload/documents/Global/Progams/CCP/Standards/ICLEI_IEAP_2009.pdf.

[11] Ibid.

In summarizing all the started greenhouse gas emissions-reducing action items in the spreadsheet, it is important to note that the majority are classified as in the thinking (25) or doing (32) stages (Figure 1). Thus, although the city has gotten a good start on these action items, there is still a lot of work to be done. The City should keep this in mind as it decides which action items to take on next, and should not get complacent in its efforts to curb greenhouse gas emissions.

Table 1. ICLEI sectors for emissions reporting at the government and community levels.[12]

Community emissions sectors	Residential
	Commercial
	Industrial
	Transportation
	Waste
	Other
	All (affects all of the above community sectors)
Government emissions sectors	Buildings & Facilities
	Street Lighting
	Government Transport
	Employee Commute
	Waste
	Other
	All (affects all of the above government sectors)

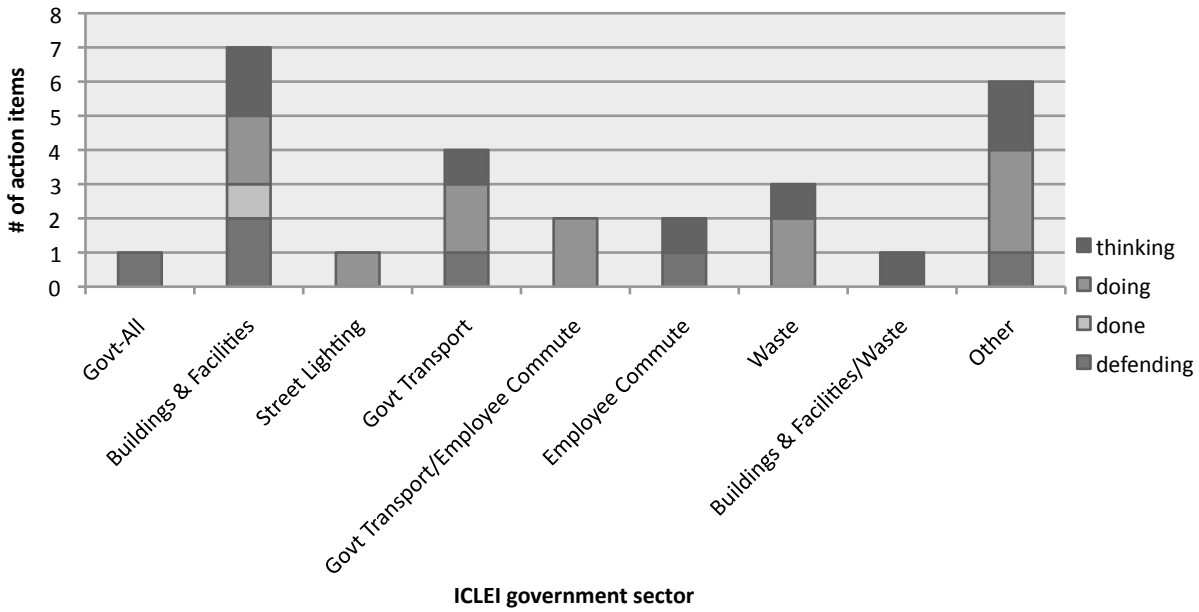

Figure 3. Breakdown of started action items across ICLEI government sectors. Action items within each sector are also broken down by started implementation status. Note that some action items fall into multiple sectors, and are categorized as such (e.g. 2 action items fall into both Govt Transport/Employee Commute).

[12] Ibid.

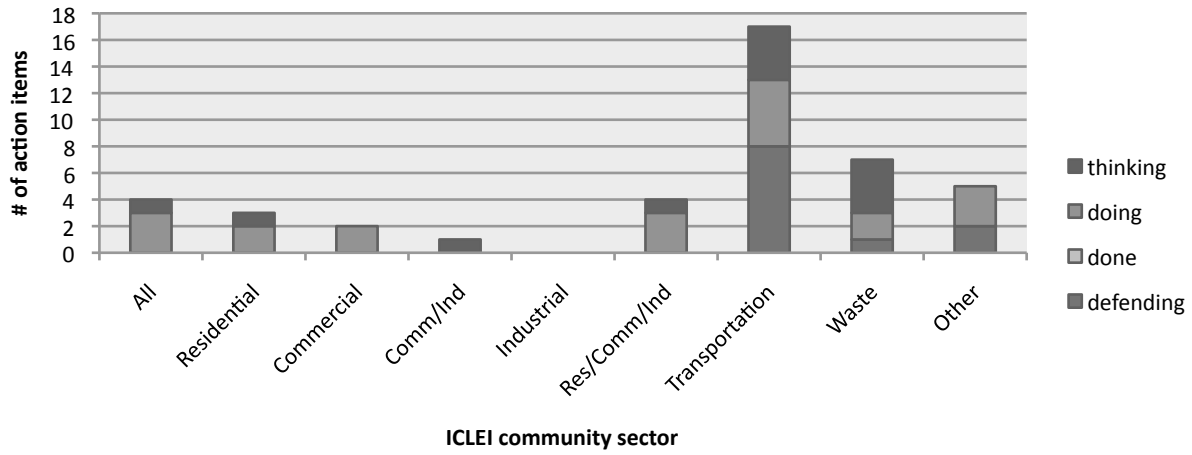

Figure 4. Breakdown of started action items across ICLEI community sectors. Action items within each sector are also broken down by implementation status. Note that some action items fall into multiple sectors, and are categorized as such.

What Action Items Are Not Started?

Thirty-nine action items in the spreadsheet have yet to be implemented in any way. Of these action items, 9 require advocacy by the City, 6 require some type of educational campaign, 4 require changes in city facilities operations or infrastructure, 5 require ordinance changes, 9 require a change in City policies, and 6 require implementation or alteration of a City program or service (see Table 2). Seventeen of these action items affect community-level greenhouse gas emissions, 9 affect government-level emissions, and 13 are considered information items that do not directly affect greenhouse gas emissions. The majority of the action items that have yet to be implemented will impact either residential, commercial, and/or industrial emissions (11 action items), or transportation emissions (5 action items) on the community side, and buildings and facilities emissions on the government side (5 action items).

The categorization discussed above of the action items that have not been implemented indicates that the largest opportunity for progress in reducing greenhouse gas emissions would be to focus on action items that impact the built environment (residential, commercial, and industrial at the community level, and buildings and facilities at the city government level) and transportation. Because these sectors are also the largest emitters of greenhouse gases at a national scale (building operations, heating and cooling and electricity account for 25% of U.S. greenhouse gas emissions[13]), focusing City efforts here would likely make the largest difference in terms of per action item emissions reduced. Action items E1, I2, O1, O2, O3, O4, P7, S1, S3, S4, and S5 affect the built environment at the residential, commercial or industrial level; action items E4, I1, P1, P4, P6, and P8 impact the built environment at the city government level (buildings and facilities). (These action items are indicated by asterisks in Table 2.)

Action Items That Are Not Currently Feasible

It is important to note that some of the action items designated not started are also not feasible at this time, for a variety of reasons. Those action items, along with an explanation of non-feasibility, are listed below:

[13] City of Portland Bureau of Planning and Sustainability & Multnomah County Sustainability Program. (2009). "City of Portland and Multnomah County 2009 Climate Action Plan," 70pp. Retrieved 25 May 2010 from http://www.portlandonline.com/bps/index.cfm?c=49989&, p22.

Table 2. List of action items that have not yet been implemented, divided by the type of action required by the City government. Darkened action items are those this report recommends as the next steps in the City's actions to reduce greenhouse gas emissions. *Indicates action items that affect emissions from the built environment, which is responsible for the largest portion of GGEs nationally.

	Advocacy
A1	Advocate for the establishment of a statewide Public Benefits Fund (aka Systems Benefit Charge or Clean Energy Fund) to pay for energy efficiency programs by levying a small charge on every customer's electricity bill.
A2	Develop a consortium of local and state support for more stringent federal efficiency standards for furnaces, refrigerators, water heaters, air conditioners, other appliances and lighting products.
A3	Lobby for renewable energy incentives in utility agreements.
A4	Support lobbying and proposals that raise the federal CAFÉ standards for new vehicles.
A5	Lobby for increase drivers license test emphasis on pedestrian/bicycle rights
A6	Explore the likely impact of an Energy Efficiency Portfolio standard (EEPS) for Indiana and/or Bloomington and consider advocating for legislation to establish a progressive, achievable EEPS target.
A7	Work with IDEM and other state agencies to develop policies promoting extended product responsibility (EPR; e.g. take-back programs).
A8	Lobby for an Indiana state bottle/can deposit law.
A9	Support nonprofit, private, and government efforts to reforest Indiana timberland.
	Education Campaigns
*E1	Encourage residents and businesses to purchase at least 10% of their electricity from renewable sources as they become available.
E2	Encourage the downtown mall to extend parking pricing to all appropriate commercial area.
E3	Work with auto repair shops to educate customers on the fuel savings (and financial savings) that result from properly maintaining vehicles and using fuel-efficient driving techniques.
*E4	Educate city employees about sustainability, with a focus on specific operational changes that will result in GGE reductions.
E5	Inform local residents, businesses, and institutions of their opportunity to invest in carbon offset projects, to meet personal or corporate GGE-reductions goals.
E6	Inform residents and businesses of their opportunity to purchase Renewable Energy Certificates to offset personal or corporate GGEs.
	Operations & Infrastructure
*I1	Install solar, geothermal and other renewable energy technologies at appropriate City facilities.
*I2	Promote improved operations and maintenance practices in buildings, including the creation of resource conservation management positions.
I3	Achieve a solid waste recovery rate (proportion of solid waste diverted to recycling, compost or for electricity generation) of 60% at City facilities.
I4	Maintain a GGE inventory for City government operations only.
	Ordinance Changes
*O1	Adopt sliding-scale building permit fees, with lower fees for buildings that meet energy-efficiency criteria and higher fees for conventional construction.
*O2	Develop local green building criteria; explore modeling these criteria on LEED green building standards.
*O3	Include a green building requirement for developers who receive tax-increment financing from the city
*O4	Strengthen Bloomington's building code and advocate for Indiana's building code to require all cost-effective energy-efficiency measures.
O5	Adopt policies to restrict the purchase and use of non-sustainably harvested timber by City agencies.
	Policy Decisions
*P1	Purchase 10% of City government electricity from renewable sources; take advantage of tax incentives

	and smart financing strategies to do so.
P2	Implement a sliding-scale fee for vehicle registration or parking permits based on a vehicle's GGEs.
P3	Offer incentives for citizens to drive fuel-efficient vehicles.
*P4	Hold City department managers responsible for resource-conservation practices in their departments.
P5	Require City departments to pay public transportation fares for guests in any circumstance in which private car parking would normally be validated.
*P6	Require all City construction projects to exceed the energy code by 20% of new construction and by 10% on retrofits.
*P7	Establish the position of a City energy plans examiner and a required field inspection of energy systems, with technical consultation available at the planning stage.
*P8	Strategically finance energy-saving projects.
P9	Purchase Renewable Energy Certificates to offset City GGEs and support development of the US renewable energy infrastructure.
	Programs & Services
*S1	Purchase only EnergyStar® appliances for low-income housing supported with city funds.
S2	Work with businesses to encourage all employers who offer their employees subsidized parking also to offer a parking "cash out" - an equivalent payment to employees who do not require vehicle parking.
*S3	Work with local industry to implement waste-heat recovery and other methods to improve energy efficiency.
*S4	Work with appropriate local industries to explore possibilities for distributed electricity generation (DG) as a means to increase renewable energy production and energy efficiency (e.g. combined heat and power (CHP), or cogeneration).
*S5	Provide educational opportunities to develop local expertise in solar electric (PV) and solar hot water system installation.
S6	Implement a commercial food-waste collection and composting program.

- *Action items involving purchasing of renewable energy (P1, E1):* Currently, there are few to no renewable energy sources available locally. Duke Energy does offer a "GoGreen" program, whereby participants can choose to "purchase green power blocks that help advance the development of renewable, environmentally friendly energy sources"[14] that are "located within [Duke's] service area, as they become available."[15] Duke Energy's list of renewable sources includes wind, solar, biomass generation, hydroelectric, landfill gas, and coalmine methane.[16] However, there is little transparency associated with this program, and as there is currently a very limited amount of local or regional renewably-generated energy, this program is not yet deemed a viable option for the purchase of renewable energy by city government or citizens.
- *Action items involving building codes and permitting (O1, O4):* Because the building code is Monroe County's jurisdiction, these action items cannot involve requirements to the building code, but can only involve such incentives as the city can offer (e.g. zoning or setback incentives). Alternatively, the City could work with the County to develop stronger building codes that require increased energy efficiency or other requirements.
- *Action items involving parking and parking permitting costs (E2, P2, S2):* Parking costs in Bloomington are currently extremely low, and thus do not encourage much less prohibit use of a personal vehicle. Thus, action items that rely on reduced parking cost as an incentive for alternative transportation would likely make very little difference in actually increasing alternative transportation use and decreasing transportation GGEs. If parking costs in

[14] Duke Energy. *Duke Energy's GoGreen Indiana.* Retrieved 25 May 2010 from http://www.duke-energy.com/indiana/products/gogreenpower.asp.
[15] Duke Energy. *The future is in all of our hands.* Retrieved 25 May 2010 from http://www.duke-energy.com/pdfs/gogreen-trifold-brochure.pdf.
[16] Ibid.

Bloomington are actually to be used as an impediment to personal vehicle use (and thus encourage alternative modes of transportation), they must be drastically increased.

- *Install solar, geothermal and other renewable energy technologies at appropriate city facilities (I1):* Solar (photovoltaic) technology has been researched by the City and deemed not cost effective or viable for any city facilities at this time (although this item should be reinvestigated in the future).

The action items described above are currently not feasible, but should be reexamined in the future, as conditions might change.

Future Actions

Of the action items designated not started listed in Table 2, the following are suggested as next steps in the City's actions to reduce greenhouse gas emissions (darkened in Table 2). Two action items have been chosen that will help reduce City government emissions and two that will help reduce community-level emissions.

City Government Emissions

I4. Maintain a GGE inventory for City government operations only.

Without a full inventory of City government emissions, it is difficult to determine any possible effects of action items that might reduce government emissions. As such, this report recommends that an inventory of City-only greenhouse gas emissions be folded into the same process as the inventory currently tracking community-level emissions. The City government emissions inventory should follow the ICLEI protocols, "International Local Government GHG Emissions Analysis Protocol (IEAP)"[17] and the U.S.-specific "Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories,"[18] and can be tracked in parallel with and using the same CACP software as community-level emissions.

P4. Hold City department managers responsible for resource-conservation practices in their departments; and, I2. Promote improved operations and maintenance practices in buildings, including the creation of resource conservation management positions.

These two action items are very similar, and so are considered together. Item P4 is a policy change that would make department managers (or a similar authority) responsible for the resources (energy, water, materials and supplies, etc.) used by their department. Item I2 is the corresponding actual change in operations that would lead to resource conservation responsibility (though it could also involve promoting resource conservation management among community industries and businesses). Though the action items suggests creation of a separate position dedicated to resource conservation management, it might be more practical and easier to implement if such tasks were folded into an existing position (or a combination of several existing positions).

[17] ICLEI-Local Governments for Sustainability. (2009, Oct). "International Local Government GHG Emissions Analysis Protocol (IEAP)," Version 1.0. 56pp. Retrieved 5 Apr 2010 from http://www.iclei.org/fileadmin/user_upload/documents/Global/Progams/CCP/Standards/ICLEI_IEAP_2009.pdf.

[18] California Air Resources Board, California Climate Action Registry, ICLEI-Local Governments for Sustainability, & The Climate Registry. (2008, Sept). "Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories," Version 1.0. 189pp. Retrieved 25 May 2010 from http://www.iclei.org/fileadmin/user_upload/documents/Global/Progams/CCP/Standards/LGOP_USA_2008.pdf.

Community Emissions

P7. Establish the position of a City energy plans examiner and a required field inspection of energy systems, with technical consultation available at the planning stage.

This action item is similar to items P4 and I2 mentioned above, however, it is specific to energy conservation and efficiency. Since operating (heating, cooling and electrifying) buildings does produce 25% of national greenhouse gas emissions as mentioned above,[19] encouraging energy efficiency in these buildings could have a drastic impact on the city's emissions. An energy plans examiner and field inspection of both planned and existing buildings would help reduce the community's energy consumption and production of greenhouse gas emissions.

S1. Purchase only EnergyStar® appliances for low-income housing projects supported with City funds.

This action item, although classified as Programs and Services, would likely initially also require a policy change by the City. Once a policy is written regarding purchase of only EnergyStar® appliances, those responsible for administering City funds for low-income housing projects can begin to implement the policy. This action item is considered a 'low-hanging fruit' because implementation would be relatively easy.

A Note on Advocacy Items

The action items listed as advocacy items, although they do not directly affect greenhouse gas emissions, could all be implemented in the form of a systematic lobbying or petitioning effort on behalf of the citizens and City of Bloomington. Such an effort could be spearheaded by the City Council and both relevant parties in City government as well as concerned citizens could sign petitions. For example, an effort to lobby British Petroleum (BP) for greater transparency regarding the April 2010 BP oil spill in the Gulf of Mexico was recently started by Councilman Dave Rollo, who crafted a petition to submit to BP and is in the process of obtaining signatures from both city government entities such as the Environmental Commission as well as citizens. Such an effort could serve as a model for some of the advocacy action items in Table 2.

General Recommendations

As the City of Bloomington considers future actions to reduce its greenhouse gas emissions, the following four general recommendations are made:

(1) In order to truly systematically reduce greenhouse gas emissions at the City government and community levels, a concrete emissions reduction target, accompanying interim goals, and an action plan is critical. As such, this report recommends first and foremost that the next step taken by the City of Bloomington be to create such a plan that would detail these goals and the relevant steps to meet these goals. The spreadsheet action items could accompany and help track progress on such a plan.

(2) The action items in the doing and, particularly, thinking categories should not be neglected in the pursuit of action items labeled not started. It is possible that some of these action items that the city is already doing or thinking about, if further implemented, could yield higher greenhouse gas emissions reductions than actions not yet started. Quantification of reductions possibilities may be useful here (see (3), below).

(3) In order to better prioritize emissions reducing action items, it may be helpful to use the new ICLEI CAPPA[20] software to calculate potential city-specific GGE reductions stemming from

[19] City of Portland Bureau of Planning and Sustainability & Multnomah County Sustainability Program. (2009). "City of Portland and Multnomah County 2009 Climate Action Plan," 70pp. Retrieved 25 May 2010 from http://www.portlandonline.com/bps/index.cfm?c=49989&, p22.

[20] Climate and Air Pollution Planning Assistant; ICLEI-Local Governments for Sustainability. (2010). "Climate and Air Pollution Planning Assistant (CAPPA)." Retrieved 26 Mar 2010 from http://www.icleiusa.org/action-center/tools/cappa-decision-support-tool.

implementation of particular action items. This software uses the city's greenhouse gas inventory information to help illustrate possible emissions reductions under various scenarios to help the city plan future actions. As the City of Bloomington looks into renewing it's subscription and membership to ICLEI-Local Governments for Sustainability for the coming years, the potential of the CAPPA software to aid in the emissions-reductions planning process should be investigated in greater detail.

(4) Finally, as noted above implementation of some of the action items (e.g. advocacy, building codes, etc.) is currently impaired due to the scale at and jurisdiction within which the City of Bloomington government operates. In order to overcome these limitations, it may be necessary for the City to begin collaborating with other local or regional authorities (e.g. Monroe County government) in order to have a greater impact on local greenhouse gas emissions. It is recommended that further investigation be made into the possibility of regional-level collaboration on climate action.

In the face of the double-edged sword of climate change and peak oil, the City of Bloomington must take significant efforts to reduce its greenhouse gas emissions and dependence on fossil fuels. This report agrees with the recommendations outlined by the Peak Oil Task Force in their October 2009 report, "Redefining Prosperity."[21] Bloomington must make ambitious goals on the fronts of peak oil and climate change mitigation, and create concrete plans to meet these goals. While the list of action items presented in "A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana,"[22] and the corresponding action items tracking spreadsheet are a good start, these documents are not legally binding or even official statements of policies or goals made by the City as a whole. As such, it is necessary that a serious and systematic effort to reduce Bloomington's greenhouse gas emissions and dependency on fossil fuels come out of the larger body politic of the City government, the City Council, and the Mayor's Office, whose policy statements carry considerably more weight than statements or reports of individual City commissions alone. Such an effort could take the form of a comprehensive Climate Action Plan, similar to the City of Bloomington Growth Policies Plan[23] but specifically addressing issues of GHG emissions,[24] or could simply be a series of carbon reductions goals and actions necessary to achieve these goals.[25] Regardless, such a report should be supported by multiple City departments and commissions, include specific mechanisms for tracking and measuring progress on implementation, and, most importantly, delegate implementation tasks to appropriate parties. Obviously, accurate quantification of present greenhouse gas emissions and reasonably accurate quantification of reductions possibilities becomes critical to the implementation of such a plan and achievement of reductions goals. Thus, it is necessary that the action plan, GGE reductions goals, and City government and community GHG inventories be closely connected throughout their creation and implementation.

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[21] City of Bloomington Peak Oil Task Force. (2008, Oct). "Redefining Prosperity: Energy Descent and Community Resilience," 258pp. Retrieved 28 May 2010 from http://bloomington.in.gov/media/application/pdf/6239.pdf.

[22] City of Bloomington Environmental Commission. (2006, July). "A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana," prepared by E. Roberts. Retrieved 27 Apr 2010 from https://bloomington.in.gov/media/media/application/pdf/5198.pdf.

[23] City of Bloomington. (2002). "2002 Growth Policies Plan," 116pp. Retrieved 27 May 2010 from https://bloomington.in.gov/media/media/application/pdf/49.pdf.

[24] For an example of a comprehensive climate action plan (CAP), see the City of Portland's recent CAP: City of Portland Bureau of Planning and Sustainability & Multnomah County Sustainability Program. (2009). "City of Portland and Multnomah County 2009 Climate Action Plan," 70pp. Retrieved 25 May 2010 from http://www.portlandonline.com/bps/index.cfm?c=49989&.

[25] Another example of a slightly different sort of action plan is from the City of Austin, Texas; their plan includes both goals and benchmarks as well as a summary of progress on these benchmarks: Austin Climate Protection Division, Austen Energy. (2008, Apr). "Austin Climate Protection Plan and Action Items: Report to Austin City Council," 20pp. Retrieved 27 May 2010 from http://www.ci.austin.tx.us/acpp/downloads/acpp_update_08apr.pdf.

Adapting to Climate Change

Ultimately, climate change is happening now.[26] The age of relying completely on mitigation of climate change through only the reduction of greenhouse gas emissions is over. Thus, in addition to the recommended actions suggested above, it would also be prudent for the City to start investigating mechanisms of adapting to climate change. The City should continue to collaborate with the Transition Bloomington initiative and follow up on the recommendations of the Peak Oil Task Force, but should also begin its own systematic effort to plan for the current and impending effects of climate change on the citizens and City of Bloomington. The aforementioned organization ICLEI-Local Governments for Sustainability offers planning as well as technical assistance for cities looking to begin coping with and adapting to climate change, and this report recommends that the City of Bloomington investigate these resources further.

[26] McKibben, B. (2010). *Eaarth: Making a Life on a Tough New Planet*. Times Books, New York, New York.